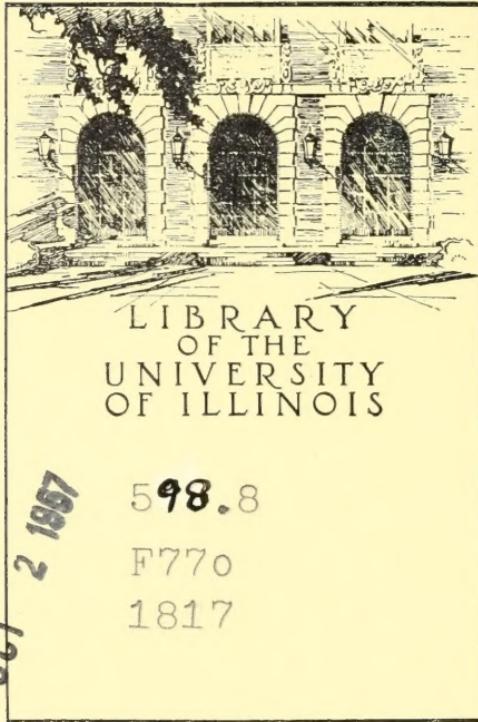


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BIOLOGY



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HIRVNDO APVS.—Page 9.

*Published for
Eaton, from the Author*

OBSERVATIONS

OF THE

NATURAL HISTORY

OF

THE SWALLOWTRIBE;

WITH

COLLATERAL STATEMENT OF FACTS

RELATIVE TO THEIR

MIGRATION, AND TO THEIR BRVMAL TORPIDITY:

AND

A COPIOVS TABLE OF REFERENCE TO AVTHORS.

ILLUSTRATED BY

FIGURES OF FIVE SPECIES,

ENGRAVED ON WOOD, BY WILLIS.

TO WHICH IS ADDED,

A GENERAL CATALOGUE OF BRITISH BIRDS,

With the Provincial Names for each, &c. &c. &c.

BY THOMAS FORSTER, F. L. S.

Corresp. Memb. Acad. Nat. Sciences, at Philadelphia, &c. &c. &c.

LONDON:

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WÜRTZ, AT PARIS AND STRASBOURG.

1817.

ОБЩЕСТВЕННОЕ

СОВЕТИТЕЛЬСТВО

ЧИТАТЕЛЬСКАЯ

ДОКУМЕНТЫ

ВИДА ТЕЛЕГРАФНЫХ ПОСЛОВ

СТАТЬИ О ГИБИРЬСКОЙ ПАМЯТКЕ

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PREFACE

TO THE THIRD EDITION.

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NATURAL HISTORY and the Sciences were not originally pursued by philosophers from a curiosity to acquire, or a desire to disseminate, the secret laws of the universe. Man is, nevertheless, an inquisitive animal, and seems, by his nature, to possess a restless solicitude about the objects with which he is surrounded, and a native desire of increasing his knowledge of things. Who can reflect on the extent of his memory, of his faculty of imagination, and of his power of communicating thought, and not suppose man constructed to enhance, by systematic inquiry, that knowledge, which, to a certain degree, must be the necessary result of sensation? And who can contemplate the variety observable in the intellectual characters of individuals, and not suppose that human pursuits would be dissimilar, and that original varieties of genius, as well as accidental circumstances of situation, would direct human efforts to the acquisition of various species

of knowledge? But we cannot suppose that the different sciences had their beginning when society was organized as it is at present: when from the social division of labour, and the state of civilization, there are many to whom the conveniences of life are measured without toil, and who can follow their inclination in the pursuit of knowledge; and when it becomes the lot of others to exercise their minds only for a means of subsistence. For the arts and sciences seem, in a measure, necessary to social improvement, and appear to have arisen, from time to time, out of the wants of individuals, and to have kept pace with civilization.

In the infancy of society, it is probable that men, then only the wild inhabitants of forests and woods, employed themselves to discover and procure the various subjects of their immediate wants; and natural history was confined to a knowledge of such animals as were fit for food, and to be procured by hunting and fishing; and such as were formidable, and to be known, that they might be avoided; or to whose superior strength human ingenuity and contrivance were to be opposed. But even in a more cultivated state of society, among the eastern nations of shepherds, who lived wandering through verdant pastures with their flocks, to dwell where-

ever fountains poured out water, or trees afforded shade, science was still only subservient to the exigencies of nature, and natural history cultivated to discover and commemorate the useful qualities of animals. Some were edible, as sheep, goats, and many horned cattle. Others useful for guards, as the dog, who protected the folds; or the ichneumon and cat, the destroyers of rats and mice, whose troublesome insults engaged men in the pursuit of a more perfect acquaintance with their habits, together with those of numerous other tribes of noisome animals and insects, who invaded the dwellings of man, and interrupted his enjoyment. Many animals were monitors, who, by their appearance, announced the impending changes of the seasons. Thus the unexpected alterations of the weather were predicted by many birds and insects: and the garrulity of the crow and the thrush; the clamorous squalling of peacocks, and the frequent immersions of water fowl; indicated rain, and warned the shepherd and agriculturalist to prepare for bad weather. Nor were the periodical returns of the seasons less marked by many birds. Such was the crane flying the wintry tempests to gain more tranquil regions. Such was the turtle and the stork, the cuckoo and the nightingale; and the swallow, who returning,

was invariably found the harbinger of spring; and who, by an association of ideas, was protected from injury, and received a superstitious respect, as being the companion of summer, the precursor of reviving nature.

The Botany of the early ages was alike restricted within the bounds of convenience with appetite: officinal herbs were cultivated, and the best fruits selected for repast. No traces are left of the cultivation even of beautiful flowers among the ancients, unless eatable, or otherwise useful. The fields of the *senex corycius* procurcd him the riches and well earned security so praised by the Mantuan poet. There is little love of beauty discoverable in the accounts left of the gardens of Alcinoüs: nor is botanical science to be found in the knowledge of Solomon, who knew every herb, from the cedar of Lebanon to the hyssop which growtheth on the wall.

It was probably long after society was completely formed, when many felt that leisure which is caused by the distribution of labour, that the minds of men, ever restless and desirous of knowledge, engaged in the pursuit of natural history for its own sake. Aristotle, Aelian, Theophrastus, and Pliny, lived in a comparatively advanced state of civilization. Such men seem to have first studied this science independently of rural

economy; and it was not till the revival of letters, after the disgusting period of the dark ages, that Gesner, Bacon, and other writers, roused the attention of mankind again to objects of natural history.

It is hoped that in time, by the modern arrangements and divisions of natural history, and the number of cooperators engaged in each department, it may ultimately acquire the beauty of a perfect system.

The following pages relate to a small branch of the said science, and contain some evidence on the question, Whether or no the genus *hirundo* is migratory?

At first sight birds engage our attention. In the beautiful tints of their plumage they exhibit a greater diversity of lively colours than most other tribes of animals. We are pleased with the different melodies of their songs. In their manners and habits they show a diversity of character correspondent to their numerous dissimilar figures; and they are perpetually before our eyes while in pursuit of their food.

The pleasure arising from the study of natural history, has its source in the endless variety of forms exhibited by living beings, and in the energies of our minds exerted when we are engaged in discovering the purposes to which each is adapted. Birds are particularly calculated to afford this pleasure, from possessing in a great degree that variety. And conformably we find they have most engaged the attention of mankind

in past ages, before subsequent researches had developed the great sagacity of insects, and had facilitated the knowledge of them, and rendered them interesting by systematic arrangements, and had a delineation of their generic and specific characters*.

Of the different habits of birds which naturalists have employed themselves to investigate, their local habitation or places of residence have been always a principal subject of their studies. Some remain all the year round in one part of the world, as the sparrow, the rook, the magpie, the owl, and most rapacious birds. Others change their habitations in the same country, in quest of food, and shift their quarters without travelling to any great distance; as the wagtail and the red-breast; and the wild geese and ducks, which come to the southward parts of our island at the approach of winter. Other birds cross the seas, and migrate to far distant countries, as the soland goose, the gannet, the blackcap, the cuckoo, and various other kinds of land and water fowl. To these latter kinds the name of migratory has generally been applied †.

British migratory birds may be divided into those which inhabit our island in the winter time, as fieldfares,

* I allude particularly to the interesting accounts of Hüber on Bees, and on Ants.

† Some birds which are stationary in one country, as the kite for instance, migrate in another, as the same bird in Aegypt.

woodcocks, and many sea birds; and those which coming in spring spend their summer with us, as the cuckoo, the wryneck, and the redstart: whether the few species of swallow which visit us in spring, and retire in autumn, are of this sort, or whether they are of a nature quite different, and become torpid during winter, is the question discussed in these sheets. The suspicion entertained by ornithologists, that they constituted an exception to the general mode of accounting for the annual disappearance and reappearance of birds, must have been founded on the fact of their having been occasionally discovered in a state of torpidity; and it is somewhat surprising that this curious circumstance did not lead to an earlier knowledge of their natural history. The more ancient Greek bards seem to have considered the swallow as a bird of passage; while the Roman natural historians regarded it as laying torpid through the winter. It is more difficult to reconcile their opposite opinions and evidence, by supposition that some species migrate, and others lie torpid, than to suppose that accidental circumstances may sometimes cause the torpidity of individuals of all. The Greek word *χελιδων*, and the Latin word *hirundo*, certainly meant the swallow; but these terms do not define the species, and were probably used for swallows in general; though in some instances we may, by the description, discover the species which the author

happened to have in his head when he was writing. There are several species of swallow known in distant parts of the world, which are unknown in this country; but the British species are known in almost all countries.

The present sheets merely exhibit such evidence from ancient and modern writers on both sides of the aforementioned question, as I have happened to collect, and such arguments as I am enabled to bring forward by a hasty examination of this subject. The paper was first printed in the year one thousand eight hundred and eight, and has lately got out of print. Since its former publication, I have examined several persons who have seen swallows many miles out at sea in spring and autumn, but whose accounts have not been accurate enough to render their publication of any use in determining this question: the narrators did not notice the particular species, and their accounts are only alluded to as affording corroboration of the opinion I have always entertained of the migration of these birds. This paper is republished, that it may excite attention to the subject, and may induce people to bring before the public such accounts, either of the noticed flights of swallows at sea, or of their discovery in a state of torpidity in the land, as may at present be only known to a few individuals.

PREFACE

TO THE FIFTH EDITION.

SINCE the publication of the early editions of this tract, the habits and manners of animals have become a subject, in Natural History, of peculiar interest, from the discoveries of Drs. Gall and Spurzheim of Vienna, respecting the connection found to exist between the shape of the cranium and the instinctive propensities of the animal. The head of a swallow in this respect corresponds with the character of a migratory bird. All the species which I have examined are endowed with an organization which, from analogy, we should infer as being capable of giving it a great power of local knowledge. It would be impossible in a few sheets to enter into the detail of this extensive and intricate subject; but the reader may consult the works written by Gall and Spurzheim jointly, and published at Paris, or the "Physiognomical System" of Dr.

OBSERVATIONS, &c.

OF the various tribes of birds found in Europe, there is, perhaps, no one which has more attracted the attention of naturalists than the Swallow; neither is there any one whose natural history is less understood. These birds make their first appearance, in Great Britain, early in spring; remain with us during summer, and disappear in autumn. The four species which inhabit this island, are also found, during summer, in almost every other region in Europe and Asia, where their manners and habits are pretty much the same as in this country, with this exception only, that they make their first appearance in spring somewhat earlier in the more southern than they do in the northern countries.

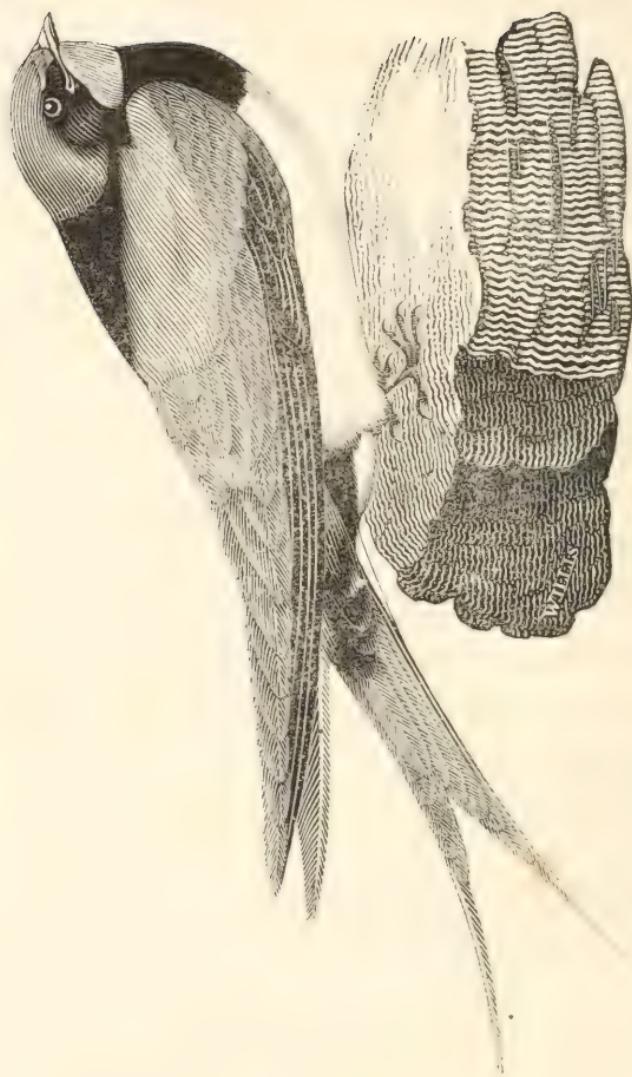
The distinguishing marks of this genus are:— bill small; mouth wide; head rather large in proportion to the bulk of the body, and somewhat flattish; neck scarcely visible; tongue short,

broad, and cloven; tail mostly forked; legs short; wings very long; flight rapid and continued. All birds of this genus feed upon insects, which they catch in flying.

As the etymological import of the names of animals frequently implies some peculiar circumstance in their natural history, so have I added the following names for the Swallow in different languages.

<i>Anglosaxon</i>	Swalewe	<i>Greek</i>	$\chi\varepsilon\lambda\iota\delta\omega\nu$
<i>English</i>	Swallow	<i>Latin</i>	Hirundo
<i>Swedish</i>	Svala	<i>French</i>	Hirondelle
<i>Danish</i>	Svale	<i>Italian</i>	Rondine, or
<i>Icelandish</i>	Svala		Rondinella
<i>Norw.</i>	Sulu	<i>Spanish</i>	Golondrina
<i>Teutonick</i>	Sualeuu	<i>Portuguese</i>	Andorinha
<i>German</i>	Schwalbe	<i>Russian</i>	Lastowitsa
<i>Dutch</i>	Swaluw	<i>Polish</i>	Iaskolla
<i>Laplandisch</i>	Swalfo	<i>Gaelic</i>	Gobhlan
<i>Cornish</i>	Tshikuk	<i>Hungarian</i>	Fetske
<i>Welch</i>	Gwennol	<i>Turkish</i>	Garindshu

HIRUNDINOIDES.—Page 3.



HIRUNDO RUSTICA.

Synonym. H. Domestica.

H. Caminicola.

Common Names for this Species in different Countries.

Latin, Hirundo domestica.

French, L'Hirondelle domestique, or l'Hirondelle de Cheminée.

Italian, La Rondine di Camino.

Portuguese, A Andorinha de Chamminé.

Spanish, La Golondrina de Chimenea.

German, Rauch Schwalbe, Feuer Schwalbe, Küchen Schwalbe, Bauren Schwalbe, or Bauern Schwalbe.

Swedish, Ladu Swala.

English, House Swallow, or Chimney Swallow.

Gaelic, Gobhlangaoithe,

Danish, Mark Svale, or Forstue Svale.

Dutch, Boeren Zwaluw.

The length of this species is about six inches, breadth from tip to tip of the extended wings

about twelve; the head, breast, and upper parts of its body and wings black; the back is of a very shining blueish black colour; the forehead and chin marked with a reddish spot; the tail much forked. This species is generally the first which arrives in spring. It usually is first seen about the first or second week of April, but does not become numerous till the beginning of May. The numbers, however, continue to increase till near June, so that there must be fresh arrivals at different times. In July and August their numbers increase by the accession of the broods of young, and soon after Michaelmas their numbers decrease, and by the second week in October they are all gone, except perhaps a straggler seen till November. This bird makes its nest in barns, outhouses, in holes under thatches, and very frequently in chimneys, about a foot below the top. Hence the common name, chimney swallow. It has two broods in the year. Like the rest of this tribe, it is perpetually on the wing, and lives upon insects, which it catches flying. Before rain, it may often be seen skimming round the edge of a lake or river, and

not unfrequently dipping the tips of its wings, or under part of its body, into the water as it passes over its surface*.

* The Ancients thought this a certain sign of rain. Thus Aratus :

Πολλάκις λίμναῖς ἡ εἰνάλιας ὥρνιθες
Ἄπλητον κλύζονται ἐνιεμέναις ὑδάτεσσιν
Ἡ λίμνη περὶ δηθὰ χελιδόνες αἴσσοιλας
Γάισέρι τέπλουσσαι ἀυτῶς εἰλυκένον ύδωρ.

Arat. Dios. 210.

Likewise Virgil, who imitated Aratus :

—Numquam imprudentibus imber
Obfuit. Aut illum surgentem vallibus imis
Aëriae fugere grues; aut bucula, coelum
Suspiciens, patulis captauit naribus auras;
Aut arguta lacus circumuolitauit hirundo,
Et veterem in limo ranae cecinère querelam.

Virg. Geor. lib. i. 377.

Pliny also puts among the signs of rain : *Hirunda tam juxta aquam volitans ut penna saepe percutiat.* Hist. Nat. xviii. 35. The same fact is mentioned by Linnaeus: *Cum volitat juxta terram sive aquam, pluuias praesagit.* The innumerable turns and rapid motions of the swallow are thus noticed in the *Epi-*
gram. Incert. Auct.

Ore bono volitans muscas deprêndit hirundo
Atque ita viventi pascitur ipsa cibo
Quumque volat lacus circum vel florida prata
Quis velit ambages pernumerare nouas?

HIRUNDO VRBICA.

<i>Syn.</i>	H. Rustica.	H. Agrestis.
	H. Domestica.	H. Fenestrala.

Common Names for this Species.

Greek, Ἄπους κυψελος.

Latin, Hirundo rustica, vel Hirundo agrestis.

French, l'Hirondelle à cul blanc, l'Hirondelle de fenêtre, ou la Martinet.

Italian, la Rondine da finestra, or il Tartaro.

Spanish, Golondrina de ventana, or Albion pequeno.

Portuguesé, Andorina de janella.

German, Haus Schwalbe, Fenster Schwalbe, Mehl Schwalbe, Kirch Schwalbe, or Berg Schwalbe.

Dutch, Huis Zwaluw, Wilde Zwaluw, or Lentebode.

Danish, Bye Svale, or Tagskiæg Svale.

Swedish, Hus Swala.

Norw. Huus Sulu.

English, Martlet, Martinet, Martin, House Martin, or Window Swallow.

Welch, Marthin.

The martin is less than the swallow. Its length is about five inches and a half; the wings are of a dusky brown; the back is black, glossed with blue; all the under parts of the body, from



HIRVNDO VRBICA.—Page 6.

the chin to the tail, are white; as is likewise a part above the tail, which is brownish, like the wings. This bird is distinguishable at first sight by the bright white colour of all the under parts of the body. The martin usually makes its first appearance early in May, though sometimes sooner, and leaves us towards the latter end of October. It builds under the eaves of houses, in the corners of windows, and in crags of rocks and precipices near the sea; and has oftentimes three broods in the year. Its nest is curiously constructed, like that of the swallow, with mud and straw, and lined with feathers on the inside. It was probably this species of which Pliny described the nidification; but it is uncertain, as the description of the nest of the other species, which he introduces at the bottom, might be taken for a martin's nest, except that he says it rarely builds it in houses*.

* Hirundines luto (nidum) construunt; stramento roborant. Si quando inopia est luti, madefactae multa aqua, pennis puluerem spargunt. Ipsum vero nidum mollibus plumis floccisque consternunt tepefaciendis ouis, simul ne durus sit infantibus pullis. In foetu summâ aequitate alternant cibum. Notabili munditiâ egerunt excrements pullorum, adultioresque circum-

Houses built with projecting roofs are soon chosen by the martin. When first Hackney New Church was built, innumerable martins built for several years under its roof; but of late their numbers have been less. The common sparrow, *fringilla domestica*, frequently occupies, during winter, the nest of the absent martin; who, returning in spring, is forced by actual combat to regain its nest. It is said sometimes to call in the aid of other martins, and to plaster up the nest with mud when the sparrow is in it, and thus smother him. In the year 1800, saw I a contest between a sparrow and a martin, which lasted some hours, under the eaves of a house at Tunbridge Wells, in Kent.

agi docent, et foris saturitatem emittere. Alterum genus hirundinum est rusticarum et agrestium, quae raro in domibus, diuersos figurâ, sed câdem materiâ, configunt nidos, totos supinos, faucibus porrectis in angustum vtero capaci. — *H. N.* x. 33.

Sub tectorum sugrundiis inque fenestrîs nidificat, non in caminis, nec nidum construit hemisphaericum, et superiore parte totum apertum vt *hir. domestica*, sed ouatum, superne tectum, rotundo tantum foramine ad latus relicto, per quod ipsa intrat et exit. — *Raii Synop.* p. 71.

HIRUNDO APUS.

Syn. H. Apus major. H. Cypselus major.
 Cypselus niger. Cypselus, apus.

*Common Names for the Species.**Greek,* Ἄρες.*Latin,* Cypselus major.*French,* le Martinet noir, Moutardier, or le Juif.*Italian,* Rondone nero, il Rondone, or il Rondinone.*Spanish,* el Veniejo, Aorejaque, or el Avion grande.*Portuguese,* O Gaivao, or O Vencelho.*Russian,* Kasatka.*Polish,* Iurz, or Iersyk.*Norw.* Svart Sulu, Ring Sulu.*Icelandick,* Ring Svala.*Swedish,* Ring Svala, or Spir Svala.*Danish,* Muur Svale, Steen Svale, Kirk Svale, or Söe Svale.*German,* Mauer Schwalbe, Stein Schwalbe, Thurm Schwalbe,

Kirch Schwalbe, or Speyer.

Dutch, Gier Zwaluw, or Steen Zwaluw.*English,* Swift, Black Martin, Black Swallow, Squeaker,
Screamer, Devilink, or Shriek Owl.

The swift is the largest of the genus, being seven inches in length, and nearly eighteen in breadth

when its wings are extended. Ruy says of this bird : *Ob alarum longitudinem et brevitatem pedum humo aegrè se tollere potest.*—Raii Synop. p. 72. It is of a sooty black colour, with a whitish spot on its breast. It arrives in this country towards the middle of May, and departs about the middle of August*. It builds in holes of rocks, in ruined towers, and under the tiling of houses. It has only one brood in the year.

The swift comes at first in greater numbers at once, and they all depart more suddenly than any of the other species.

* It is remarkable, that most countries have a similar proverb relating to the swallow's accidental appearance before its usual time. The Greeks have Μία χειρὶδῶν ἵας σὸν; the Latins, Vna hirundo non facit ver; the French, Une hirondelle ne fait pas les printems; the Germans, Eine schwalbe macht keinen früling; the Dutch, Een swaluw maakt geen zomer; the Swedes, En svala gör ingen sommar; the Spanish, Una golondrina no hace verano; the Italians, Una rondine non fa primavera; and the English, *One swallow doth not make a summer.*



HIRUNDO RIPARIA.—Page 11.

HIRUNDO RIPARIA.

Syn. H. Arenaria.

Common Names for the Species.

Anglo-Saxon, Stœth Swalewe.*Welch*, Gwennol y glennydd, or Gwennol y dwr.*Gaelic*, Gobhlan-gainbhich.*German*, Ufer Schwalbe, Wasser Schwalbe, Strand Schwalbe,
or Rhein Schwalbe.*Dutch*, Oever Zwaluw, Aard Zwaluw, or Zand Zwaluw.*Danish*, Dig Svale, Jord Svale, Klint Svale, or Solbakke.*Norw.* Sandrönne, Dig Sulu, Strand Sulu, or Sand Sulu.*Swedish*, Strand Svala, or Back Svala.*Russian*, Strisch, or Granatotshka.*Polish*, Grzebielucha.*French*, l'Hirondelle de rivage.*Italian*, Rondine riparia.*Spanish*, Golondrina de ribera.*English*, Sand Martin, Sand Swallow, Bank Martin, or
Shore Bird.*Armen.* Choll.

The sand martin* is the smallest of the genus,

* Ita vocant in riparum cauis nidificantes.—*Plin. Hist. Nat.*
lib. xxx. cap. 4.

In riparum foraminibus nidificat.—*Raii Synop.* p. 72.

being about four inches and three quarters in length, and is of a dusky brown colour above, and whitish beneath. It builds its nest in holes, which it bores in banks of sand, and is said to have only one brood in the year.

The steep banks of some rivers abound with the nests of this bird. They are numerous about Boxhill, Guildford, and other sandy parts of Surry and of Kent, where I have examined their nests in autumn, by digging into their holes.

HIRUNDO TAHITICA.

Syn. H. Caerulea. Otaheite Swallow.

Length about five inches, upper parts of the body bright blue, forehead and under part of the neck brownish purple, tail black and somewhat forked. Inhabits the mountains of Otaheite.

HIRUNDO PHILIPPENENSIS.

<i>Syn.</i> H. Panayana.	Panayan Swallow.
L'Hirondelle d'Antique.	Philippine Swallow.

Length about five inches, front and throat yellowish, upper part blackish, under part white.

HIRUNDO RUFA.

Syn. L'Hirondelle de Cayenne. Rufous Swallow.

Length five inches and a half. Forehead white, upper parts shining black ; under parts red. This species is found in Cayenne. It builds under the roofs and eaves of houses, like our martin ; but the nest is much larger, being above a foot long, and made of moss and twigs.

HIRUNDO CAPENSIS.

Seven inches long. Inhabits the Cape of Good Hope. It makes its nest of mud, lined with feathers, and builds about houses.

HIRUNDO SENECALENSIS.

La Grande Hirondelle de Senegal. Senegal Swallow.

Above eight inches long. Of a shining black ; the under parts reddish. Inhabits Senegal.

HIRUNDO FASCIATA.

Syn. H. Ripicola. L'Hir. à ceinture blanche.

H. Fluvialis. White bellied Swallow.

Six inches long. Found in Cayenne, Guinea, &c. Nestles in the banks of rivers.

HIRUNDO AMBROSIACA.

H. Riparia Senegalensis.	H. Marina indigena.
H. Cinerascens.	Ambergris Swallow.

Five inches and a half long. Inhabits Senegal.
There is a variety of the last found in China.

HIRUNDO RUPESTRIS.

Syn. H. Rupicola. Rock Swallow.

Found in Carniola. Builds in rocks.

HIRUNDO MONTANA.

L'Hirondelle grise des Roches.	Mountain Swallow.
L'Hirondelle des Montaignes.	Crag Swallow.

Very much like the last ; and found in the south of Europe.

HIRUNDO DAURICA.

H. Alpestris. Daurian Swallow.

About six inches long. Builds in lofty rocks and mountains of Siberia. The nest is large, and very elegantly constructed *.

* Nidus maximus haemisphericus tuberculis limosis eleganter purissimeque extuctis sine ullo gramine admisto : canalis ad aliquot pollices a nido extensus pro aditu.—*Lath.*
Index Orn.

HIRUNDO PURPUREA.

Wholly of a violaceous colour, with a forked tail.
Inhabits South America, lives about houses, and is said to warn the chickens of the approach of rapacious birds.

HIRUNDO AMERICANA*.

Of a black and white colour; is an inhabitant of America.

HIRUNDO TAPERA (Maregr. brag. 205).

Syn. H. Americana. La Tapere.

Sloane observes of this species, that it is only seen during six months in Jamaica, like the common swallow in Europe.

Upper parts black, under parts white; inhabits America.

HIRUNDO PELASGICA.

Also an American species; inhabits chimneys, like the *Hirundo Rustica*.

Mr. Bartram observed vast flights of this species, as well as of the sand swallows, flying along

* Var. β .—H. Subis?

from Carolina and Florida, towards Pennsylvania, in the month of March.—See *Lath. Synop. Supp.* 2d vol. p. 257.

HIRUNDO MELBA.

Brown, the under parts white; inhabits the Fretum Herculeum.

HIRUNDO PRATINCOLA.

This large species is probably the one alluded to by Scaliger, when he said he saw a swallow of the size of a turtle dove. It is brown above and white below, with a blackish line about its neck. Inhabits the coasts of the South of Europe. Two specimens have been seen alive in England, an account of which may be found in the Trans. Lin. Soc. of London.

HIRUNDO ERYTHROCEPHALA.

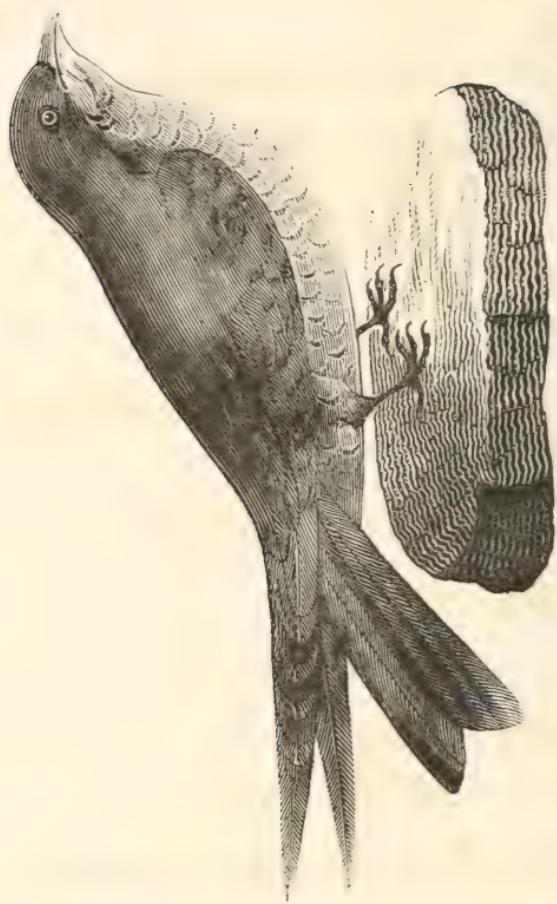
Small red headed species. Found in India.

HIRUNDO AOONALASCHKENSIS.

Four inches long. Inhabits Aoonalaschka.

HIRUNDO INDICA.

Four inches long; head red. India.



HIRVENDO ESCVIENTA.—Page 17.

HIRUNDO NIGRA.

Black entirely; six inches long. Found in Cayenne.

HIRUNDO DOMINICENSIS.

Seven inches long. Inhabits St. Domingo.

HIRUNDO PERUVIANA.

Inhabits Peru.

HIRUNDO ESCULENTA.

An inhabitant of China, and is celebrated for its esculent nests.

HIRUNDO CINEREA.

Inhabits Peru.

HIRUNDO CHALYBEA.

Inhabits Cayenne.

HIRUNDO TONQUATA.

Inhabits Brasil, Jamaica, and Cayenne.

HIRUNDO LEUCOPTERA.

White winged Swallow. Inhabits Cayenne.
A variety found in Guinea.

HIRUNDO BORBONICA.

Wheat Swallow in Isle of France. There is a variety of this species.

HIRUNDO FRANCICA.

Inhabits India, &c.

HIRUNDO ACUTA.

Sharp tailed Swallow. Inhabits Martinique.

HIRUNDO CAYENENSIS.

Five inches long. Inhabits Cayenne.

HIRUNDO SINENSIS.

Inhabits China. A foot long.

The Fauna Suecica, and also Brown in his Jamaica, class the Caprimulgi Europeus and Americanus among the swallows.

I might add the sea swallows; *Sterna hirundo*, *Sterna minuta*, the *Sandwich tern*, and others of the genus. Some of these may have been mistaken by some writers for swallows. But the accounts which I have received of swallows being seen at sea, are explicit enough to determine them not to be *terns*, though they are not satisfactory as to what species of swallow*.

* For varieties, see Appendix.

ON THE WINTER RETREAT OF THE SWALLOW
TRIBE IN GENERAL.

THERE is, perhaps, no subject in natural history which has more engaged the attention of naturalists in all ages, than the brumal retreat of the swallow; neither is there any subject on which more various and contrary opinions have been entertained. The reader may judge of the interest which the retreat of the swallow has excited, when he reflects, that few natural historians, from the time of Aristotle to our days, have omitted the discussion of this subject. It has been frequently alluded to by the ancient bards; and even poems have been written on it. In the library of Sir Joseph Banks is a curious one in Latin hexameters, written in Holland, on the occasion of a swallow being found torpid in an old tree. In Prussia, and some of the northern countries, was the question of the place of their retreat considered of so much importance by some naturalists, that persons who asserted themselves to have found them torpid under water were put to their oath, or induced to make affidavits.

and give written documents, importing the particulars of the fact. The periodical journals were full of the controversy about their place of retreat; and upwards of a hundred letters on the subject were published in the Gentleman's Magazine. Some persons have supposed that swallows retire at the approach of winter to the inmost recesses of rocks and mountains, and that they there remain in a torpid state until spring. This was certainly the opinion of Pliny, who says, *Abeunt et hirundines hybernis mensibus; sola carne vescens avis ex iis quae aduncos vngues non habent; sed in vicina abeunt, apricos* secutae montium recessus, inuentaeque iam sunt ibi nudae atque deplumes.*—Lib. x. cap. 24.

But notwithstanding that we have the authority of so learned, though at the same time so credulous a naturalist as Pliny, it seems almost absurd to suppose that the swallow differs so much in its nature from

* Some editions have *Africos*, instead of *apricos*. The latter however is certainly the best, for Pliny would surely have applied the adjective to *montium*, and not to *recessus*. Thus he would have said, *Africorum secutae montium recessus*; or else, *Africae montium secutae recessus*.

other birds, as we do not find any material difference either in its external or internal formation. Others have conjectured that these birds immerse themselves in the water at the approach of winter, and that they remain at the bottom in a state of torpidity, until they are again called forth by the influence of the vernal sun. Linnaeus was probably of this opinion, when he said, *Hirundo rustica habitat in Europae domibus intra tectum, rnaque cum vrbicâ autumno demergitur, vereque emergit.* But most likely in this, as in some few other cases, he gave credit to the fabulous assertions of others, without examining into the truth of them himself*. There are several instances on record of their having been found in such situations, clustered together in great numbers, and that, on being brought before the fire, they have revived and flown away. But, unfortunately, only a few of these accounts have been well authenticated; and the celebrated John Hunter made many experiments which tended to shew that these birds cannot continue long under water

* It has been doubted by some, whether Linnaeus meant any more by *demergitur* and *emergit*, than that the swallow was hid, and came forth again.

without being drowned *. I do not mean to deny that swallows have been found under water; for it is well known that they have; and this probably has given rise to the absurd notion entertained by some, that the whole of the species winter in that element. But I should certainly attribute their being found in such situations to mere accident; in some cases it might have been occasioned by such a circumstance as the following :

It is well known that, towards the latter end of autumn, swallows frequently roost by the sides of lakes and rivers †; we will suppose, therefore, that a number of these birds had retired to roost on the banks of some shallow and muddy river at low tide, and that they had been induced by the cold to creep among the reeds or rushes which might grow in the shallow parts of the river, and that while in this situation, driven into a state of torpidity by the

* The experiments of Mr. Pearson, related in Bewick's Birds, shew, I think, that the swallow has no great propensity to become torpid in winter, unless operated on by some other circumstance than merely the time of the year.

† This circumstance may have contributed to induce some to believe that they go into the water.

cold, they had been overwhelmed, and perhaps washed into the current, by the coming in of the tide, and even into the nets of fishers *.

There are several other circumstances which seem to favour the opinion, that some of these birds remain concealed during winter even in this country. Among others, the most striking is, that swallows, *hirundines rusticae*, as well as martins, *hirundines vrbicae*, have sometimes appeared very late in autumn, a considerable time after they were all supposed to have taken their departure †. Again,

* There have been occasional instances of other birds besides swallows having been found in a state of torpor during winter. I think I recollect a cuckoo being found in such a state.

† Of this we have several instances: Bewick, in his History of British Birds, Introduction, p. xvii. takes notice of having seen a straggling swallow so late as the end of October; and White, in his Natural History of Selborne, mentions having seen a house martin flying about in the month of November. Montague, in the Supp. to Orn. Dic. mentions having seen many swallows and martins so late as November 5, 1805. To which I may add, that, in the year 1804, I saw several, both martins and swallows, flying about in the neighbourhood of London, so late as October the 19th. I have since frequently seen them later than that time.

as I have before had occasion to observe, they have sometimes been taken out of the water, in winter, in a torpid state, not only out of rivers, but also out of lakes and stagnant pools, and even out of bogs *. They have likewise been found concealed in the crevices of rocks, in holes of old decayed trees, in old ruined towers, and under the thatch of houses †.

From the consideration of the above facts alone, without making any farther inquiry into the subject, have many persons concluded that the whole tribe always winter in similar situations. It seems, however, much more probable that those birds, which may have been found in a state of torpidity, as above described, had, owing to some accident, been

* For further particulars relative to the torpidity of swallows, see *Miscellanies by the Hon. Daines Barrington*, page 225 and sequel; also *Buffon. Hist. Nat. des Oiseaux*, 4to, Paris, 1780, *Plan d'Ouvrage*, p. xiii.

† A great many sand martins' holes have been opened in winter, and nothing has been found in them but old nests.—See *Phil. Trans.* vol. li. p. 463.

In October, 1810, I opened several sand martins' holes near Dorking in Surry, and found in one of them a variety of very small bony substances, which might be part of large insects, mixed with dirt.

hatched later in the year than ordinary, and that consequently they had not acquired sufficient strength to undergo the fatigue of a long journey upon the wing, at the time when the migration of the rest of their species took place. It is very probable that many of these, in order to shelter themselves from the inclemency of the weather, may, provided with corresponding instincts, have retreated to holes of rocks, and other recesses, where, from cold and hunger, they may have sunk into a state of torpidity *. Others, for the same reason, may have crept among the weeds, which grow by the sides of rivers and ponds, where they may have been overwhelmed by the increase of the water, occasioned by the heavy rains which often happen towards the end of autumn ; and some, which may not have been long immersed, may probably have been restored to

* See Montagu's Ornithological Dictionary, under the word *martin*.

It is by no means improbable that very cold and frosty weather in spring may sometimes drive the swallow, just arrived, into some snug retreat, where it may remain until the warm weather returns.—See *Phil. Trans.* vol. lxxv. p. 259.

life, when brought into the sunshine, or before a fire.

But that the chief part of each species migrate, is so well established by a multitude of corresponding facts, that it seems almost an absurdity to doubt of it. In the first place I would observe, that if these birds lay concealed in winter, in the same countries which they inhabit in summer, they would probably make their first appearance in spring, in mild weather, and would appear sooner in early than in late seasons, which is quite contrary to experience. For several years past have I observed that chimney swallows have appeared first in cold weather. I have sometimes seen them as early as April the 2d, when the mercury in the thermometer has been below the freezing point. On the other hand, I have often taken notice, that during a continuance of mild weather for the space of a fortnight, in the month of April, not so much as one swallow has appeared.

It is a well known fact, that the swallow, like most other birds of passage, appears earlier and departs later in the southern than in the northern parts

of Great Britain ; and it must have been observed, by every one who is attentive to natural history, that towards the latter end of September, swallows, *hirundines rusticae*, as well as martins, *hirundines verbicae*, congregate in great numbers, and are frequently seen sitting on the tops of houses, and on rocks near the sea. These meetings usually continue for several days, after which they suddenly disappear *.

Swifts, *hirundines apodes*, also begin to assemble in large bodies previous to their departure, early in July : their numbers daily increase, and they soar higher in the air, with shriller cries, and fly differently from their usual mode. Such meetings continue till towards the middle of August, after which they are seldom seen.

Sand martins, *hirundines ripariae*, likewise flock together in autumn. Some years ago they are said to have appeared in great numbers in London and its neighbourhood.

* Swallows seldom perch on trees, except in autumn, shortly previous to their disappearance, and they then choose dead trees in preference. I have known them sit on trees earlier in summer, when the weather has been very cold.

From all the abovementioned circumstances, as well as from the great length of the wings, in proportion to the bulk of the body, of all this genus *, it must appear evident that swallows are birds of passage: for it is hardly to be supposed that they would assemble together merely to hide themselves: on the contrary, it is most probable that, were this the case, each individual bird would seek a hiding place for itself.

Before I proceed to examine the evidence of each side the question, I must observe one great objection to the idea that the torpidity of the swallows is the general way in which they spend the winter; namely, the length of time in which some of the species are absent from their summer haunts. If the swift, *hirundo apus*, lay asleep during the whole of its absence from England, it must sleep for a continuance of nearly nine months out of twelve: a preponderance of torpidity over anima-

* "If we calculate the velocity of this bird on the wing, and that it can and does suspend itself in the air for fourteen or fifteen hours together in search of food, it cannot fly over a space of less than two or three hundred miles in that time."—Montagu *Ornith. Dict.*

tion almost incredible, and to which I know of nothing analogous in the whole creation!

DIRECT EVIDENCE TENDING TO ESTABLISH THE ANNUAL SUBMERSION OF SWALLOWS.

It may be proper here to advert to the most authentic accounts I have been able to collect of swallows being found in a state of torpidity. I shall then proceed to speak of the proofs of their migration. The reader may compare the evidence on each side of the question.

The Hon. Daines Barrington communicated to the public an account of some swallows found torpid in old dry walls, and in sand hills near the seat of Lord Belhaven, in East Lothian. Some of these, when warmed by a fire, revived. The particular species of swallows was unfortunately not noticed in this, nor in many of the following instances. Near Dolgellau, in North Wales, were some swallows found in an old tree. Numbers of swallows were also found in a cliff in Yorkshire, near Whitby, by some

persons who were digging for a fox. M. Pen-nant notices an account of a M. Conway, of Sychton, in North Wales, who found a vast number of torpid swallows, just before Christmas, clinging to the shaft near the top of a lead mine: on flinging some gravel on them they moved, but did not fly away. The above-mentioned facts seem to shew the power of the swallow to remain torpid in concealed situations in cold weather, and to be reanimated by the returning warmth. The following tend further to confirm the opinion that these birds may also remain torpid immersed under water, and can return to life on the return of warm weather.

It is asserted, on the authority of M. Klein, the naturalist, that the mother of the Countess of Lehndorf saw a bundle of swallows brought from out of the Lake Fische Haff, near Pillaw, which, when brought to a fire, flew about.

Count Schileben is said to have given an instrument, on stamped paper, purporting that he had seen swallows fly about a room, which he had taken out of the lake at Gerdauen in winter, and had brought before a fire. M. Klein examined

a considerable number of other cases of swallows found in lakes, and often under ice, by fishermen, who swore positively to the facts, and said they had seen the birds brought to life by exposure to warinthe. To a considerable number of similar instances an eminent writer adds himself among the number of witnesses to this curious fact: *An dem Jahr 1735, da ich ein Knabe war, so sah ich viel n Schwalben, welche des Winters, von einem Fischer, im IWasser gefunden waren.* Dr. Wallerius, the Swedish Chemist, likewise asserts, he has more than once seen swallows in autumn cling in such numbers on a reed in the water, that they have borne it down, and all gone to the bottom. The above accounts relate chiefly to Poland, Prussia, Scotland, and the more northern countries, where, according to the opinion of Kalm, swallows are more often found submersed in water than in England, France, Italy, Germany, or Spain, from whence he allows the majority may migrate.

I shall be obliged to any person who will communicate well attested accounts similar to those above stated. I cannot end these curious

accounts without observing, that the form of the brain of the swallow corresponds so exactly with that of known migratory birds, that I cannot avoid being persuaded of its migratory nature: at the same time, it may be provided with other instincts and powers to shelter itself, by submersion in water in case of emergency, from the fierce and destructive cold of winter. It is proposed to those gentlemen who study the comparative physiology of the brain, to inquire, Whether the organic conditions of any such amphibious instincts can be found?

DIRECT EVIDENCE OF THE MIGRATION OF SWALLOWS.

IT will be proper now to examine the accounts of mariners and others, who have seen these birds on their passage, many hundred miles out at sea, and on whose ships they have alighted to rest, almost exhausted with fatigue and hunger: by which means we may be enabled, in some mea-

sure, to determine to what quarter of the globe they retire, when they leave Europe in autumn.

Adanson, in his Voyage to Senegal, relates, that on the sixth of October, being about fifty leagues from the coast, between the island of Goree and Senegal, four swallows alighted on the shrowds of his ship, which he easily caught, and knew to be European swallows. He adds, that these birds never appear at Senegal but in the winter season, and that they do not build nests as in Europe, but roost every night on the sand by the sea shore. It is much to be lamented that Adanson, who was a naturalist, did not mention of what species these birds were. It is, however, most probable, as they were seen at Senegal on the sixth of October, that they were chinney swallows, *hirundines rusticae*, as martins, *hirundines vrbicae*, seldom leave their summer haunts till after that time; and swifts, *hirundines apodes*, usually depart before the twenty-fifth of August. With respect to bank martins, *hirundines ripariae*, it is very unlikely that Adanson should have mistaken them for

chimney swallows, being distinguishable at first sight from the three abovementioned species, by their inferior size.

Mr. Kahn noticed a swallow to alight on the ship in which he was crossing the Atlantic from Europe, on the 2d day of September.

Latham, who quotes Adanson's account, evidently understood the birds in question to be chimney swallows, and supposes Senegal and the adjacent parts of Africa to be the winter residence of this species. The writers of *Le Nouveau Dictionnaire d'Histoire Naturelle*, published at Paris in 1803, seem to have been of the same opinion. *Celles (les hirondelles) de cheminée*, say they, (vol. xi. p. 18.) *vont, jusqu' au Senegal, ou elles arrivent vers le 9 Octobre, et en repartent au printemps. Il n'est pas rare dans les migrations d'en voir en mer, qui, lorsqu'elles sont trop fatiguées, se reposent sur les vergues des navires; et parmi elles, on a reconnu celles qui habitent parmi nous.*

Another account, which affords additional proof that swallows are birds of passage, though it will not assist us in discovering to what part of the

world they go, is that of Sir Charles Wager, first lord of the admiralty; who relates, that in one of his voyages home, as he came into soundings of our channel, a great flock of swallows settled on his rigging: every rope was covered with them: they hung on one another like a swarm of bees: the decks and carvings were filled with them: they seemed spent and famished, and, to use his own expression, were only feathers and bones; but recruited with a night's rest, they resumed their flight in the morning.

Peter Collison, F. R. S., in a letter to the Hon. I. T. Klein, mentions, that a similar circumstance happened to Captain Wright, in a voyage from Philadelphia to London: the particulars of which, it appears, the captain neglected to relate*.

* Collison adds, "I have for many years been very watchful in taking notice of the times when the swallows leave us, and I think I have twice actually seen them taking their flight. At two different years (on the 27th and 29th of September,) walking in my garden at noon, on very sunshiny days, and looking up into the sky, I distinctly saw an innumerable number of swallows,

I may subjoin, that I have questioned several persons, who have crossed the ocean, on the subject of birds occasionally met with out at sea, and have frequently been told of the sudden appearance of flights of swallows many hundred miles from land.

If the above accounts may be depended on, (which I can see no reason to doubt, since the relators could have no interest in supporting them if they were false,) it must appear evident that the birds in question, at the time when they were seen at sea, as above described, must have been on their passage from some distant country ; there being no other apparent cause for their appearing at any considerable distance from land.

There are many accounts of persons who appear to have seen the swallows actually setting out on their aërial voyages, besides that of M. Collison in the foregoing note. Mr. White, of Selborne, walking one morning on the Coast of soaring round and round ; higher and higher ; until my eyes were so pained with looking at them, that I could no longer discern them." See *Phil. Trans.* vol. i. p. 461.

the British Channel, saw a vast number of swallows resting on the standing rushes, who so soon as the sun got up, and the mistiness of the morning broke off, took wing, and flew over sea, and were no more seen. He mentions also, that his brother in Andalusia constantly observed the migration of swallows and other birds, annually traversing the Straits from North to South in autumn, and back again in spring.

Lieut. Col. Macironi assures me that he has seen large flights of swallows crossing the Mediterranean when out at sea, and has likewise seen them fly in large bodies out to sea, from the shores of Italy, in autumn, in a southern direction.

If swallows uniformly appear in Senegal when they disappear in almost every country of Europe, and at no other time ; and if they regularly appear in most parts of Europe when they disappear in Senegal, and at no other time, (which, according to Adanson, is the case,) it seems reasonable to conclude, that Senegal and other warm regions of Africa, and the cold and temperate countries of Europe and Asia, are alternately inhabited by the same birds.

This will appear more evident when it is considered that the same causes which operate to drive them away from the northern and temperate nations of Europe and Asia, namely, rigorous weather, and scarcity of food in winter, do not exist in Senegal and other tropical countries, where the weather is constantly warm, and the air always abounds with winged insects.

It has often been said, in objection to the migration of swallows, that considering the number of these birds which annually inhabit Europe, if all were to cross the ocean twice a year, they would oftener be seen by mariners on their passage, than they appear to be*. But it seems to me very unlikely that they should very frequently be seen; because, from the extraordinary length of their wings, it is probable they perform their aërial journeys at too great a height to be discerned; and most likely those which have

* It does not appear, upon inquiry, that these birds are so seldom seen at sea, as, from the scarcity of published accounts, one might be inclined to imagine. I have often heard seamen say, that they have seen swallows many hundred miles from land, during their voyages.

occasionally alighted on ships, in their way, had, owing to stormy weather, contrary winds, or some other casualty, been too much fatigued to proceed without resting. And I think it further probable, that great numbers of these birds, labouring under the above disadvantageous circumstances, annually fall into the sea and are drowned. For, as White observes, in his "Natural History of Selborne," unless these birds be very short lived indeed, or unless they do not return to districts where they have been bred, they must undergo some great devastation somehow, or somewhere; because the numbers that return in spring, bear no manner of proportion to those which retire in autumn.

It seems, however, unnecessary to suppose that swallows and other migratory birds must necessarily always cross the wide ocean in their flights; they may cross over the Channel to the Continent of Europe, from Britain; and again from Europe into Africa, from Spain. I believe, however, that swallows have power of wing enough to take a very long aerial voyage: but the length of any journey to Africa could be no objection to the idea of their migra-

tion, as even the young broods, and indeed winged birds of the weakest power of flight, might get from Dover to Calais by less than an hour's exertion on the wing*.

OPINIONS OF WRITERS IN DIFFERENT AGES.— CONCLUSION.

I SHALL conclude my observations, by taking some notice of what several ancient and modern writers have said respecting the swallow; concerning the winter retreat of which, there seems to have been two different opinions among the ancients, and three among the moderns.

The prophet Jeremiah takes notice of the coming of the swallow, in common with that of

* I noticed the swallows to be very numerous in the low grounds between Dunkerque and Calais in the early part of the summer of 1815. The weather had previously been cold, and we had had very little summer.

several other known birds of passage*: *Yea the stork in the heavens knoweth her appointed time; and the turtle, and the crane, and the swallow, observe the time of their coming.*

Chap. viii. 7.

The poet Anacreon not only notices the migration of this bird, but supposes Aegypt to be the place of its destination†.

* If the reader should doubt whether the Hebrew word which we render *swallow*, and the translators of the Septuagint χελιδὼν, originally signified the bird which we now give that name, he may consult Bochart's *Hierozoicon, sive de Animalibus Sacrae Scripturae.* Fol. London, 1663.

Vol. ii. p. 59.

† Σὺ μὲν φιλης χελιδὼν,

Ἐπησίν μολοῦσα,

Θίρει πλέκεις καλιῆν

Χειμῶνι, δ' εις ἄφαντος

Ἡ ΝΕΙΛΟΝ ἢ τὰ ΜΕΜΦΙΝ.

Carm. 33.

Barnes, the editor of Anacreon, in a note on this passage, says, “ Nonnulli putant (hirundines) in scopulis, aut in truncis arborum sopitas latere, totâ hyeme, ut Kircherus in mundo subterraneo; Ita Ovid. Cum glaciantur aquae, scopulis se condit hirundo. Alii illas aliquandò sub ipsis

Herodotus observes, that kites and swallows are found in Aegypt all the year round *. Prosper Alpinus informs us, that there are two kinds of swallows found in Aegypt; that one of them is a bird of passage; but that the other, which, from the description he has given of it, appears to be the swift, *hirundo apus*, remains there all the year†. Aristotle takes notice of the de-

aquis, in fundo, latere; ut *Pecklinius* in libro de aëris et alimenti defectu et vitâ sub aquis." The above quoted hexameter line is not in Ovid's works, it must therefore have been wrongly quoted from the Latin Anthologia.

* Ιχλίνοι δέ καὶ χελιδόνες διὰ ἔτεος εοῦσες τὴν ἀπολειψάσι. Lib. ii. cap. 22.

Possibly some of the species remain all the year in the warm regions of Africa and Asia, while others annually migrate into the more northern parts of the world, where they are very useful in clearing the air of innumerable insects, with which it abounds in summer.

Kites (*Ixilivos vel Ixilives*) are generally believed to migrate into Aegypt in great numbers in autumn.

† Hirundines duplicitis generis ibi obseruantur; patriae scilicet, quae, numquam ab Aegypto discedentes ibi perpetuò morantur; atque peregrinae; hae sunt nostratibus omnino similes; patriae vero toto etiam ventre nigricant. — *Hist. Aegypt.* vol. i. p. 198.

parture of swallows, but says nothing further concerning their brumal residence, than that they do not winter in Greece*.

Isidorus mentions their passage across the sea, and supposes that they winter in some distant country †.

Pliny, as I have before observed, asserts that they withdraw themselves in autumn to the sunny recesses of mountains, where they are found in winter without feathers. Neither does he appear altogether singular in this opinion ; Claudian alludes to swallows being found dead in the

* Απειρός δὲ, &c. καὶ ἔχει μαζεύσι, καὶ ἀτελείδονες, καὶ ἀτρευγόνες.
—Hist. lib. viii. cap. 12.

Aristotle in another place, as Gesner observes, mentions the swift, *ἀπειρός*, as being seen at all times of the year ; and notices the resemblance of this bird to the swallow, *χελιδών*, which, with many other passages that the reader may find and consult by referring to the index at the end, leave no room to doubt that the *ἀπειρός* was our swift, *hirundo apus*. I do not know however, that in any part of Greece this bird remains all the year. The account, however, seems to correspond with that of Prosper Alpinus above cited.

† Maria transuolat (*hirundo*) ibique hyeme commoratur. —
Isidorus.

hollow trunks of trees in winter*; and it is remarkable there are three islands over against Mount Taurus, called by the ancients $\chi\epsilon\lambda\iota\delta\acute{o}\nu\alpha\tau\iota$, and a promontory called $\chi\epsilon\lambda\iota\delta\acute{o}\nu\iota\omega\nu$; because swallows were supposed to hide themselves there in winter†. The west wind likewise, from blowing in the spring, about the time of the swallow's arrival, was denominated Chelidonian ‡.

I now come to the opinion of more modern writers on this subject, who seem to have been as undetermined with respect to the winter retreat of the swallow, as the ancients.

* *Vel qualis gelidis plumâ labente pruinis
Arboris inmoritur trunko brumalis hirundo.*

Claud. in Eutrop.

There is a curious Latin hexameter poem, published many years ago in Holland, on the occasion of a swallow being found in a hollow tree; a copy of which is in the library of Sir Joseph Banks.

† *Quae contrâ tauri promontorium importunae nauigantibus obiacent, Chelidoniae nominantur. — Pomp. Mela, de Situ Orbis, ii. 9. 27.*

‡ Oppian calls the swallow,

Μητηρ ἐιαρινη ζεφυρου προταγγελος ὄρνις.

And Horace solicits the return of his friend,

Cum zephyris, si concedes, et hirundine prima.

It appears that Olaus Magnus, archbishop of Upsala, was the first who broached the opinion, that these birds spent the winter under water. This credulous man assures us, that they are frequently found clustered together in masses, at the bottom of the northern lakes, and that they creep down the reeds in autumn to their sub-aqueous retreats*.

Kalm thought that swallows generally migrated from the temperate climates of Europe; but that those found in the more northern regions partook of the wintry torpors of some other polar creatures.

Klein was decidedly of opinion, that chimney swallows wintered in the water, and sand martins in their holes in the banks of the rivers, etc.†

* “That the good archbishop” (says Pennant) “did not want credulity in other instances, appears from this, that having stocked the bottoms of the lakes with birds, he stores the clouds with mice, which sometimes fall in plentiful showers on Norway and the neighbouring countries.”—See *Gesner. Icon. An.* 100. The immense number of lemmings, *mures lemni*, which, at uncertain periods, suddenly make their appearance in various parts of Norway, Sweden, and Lapland, has, probably, given birth to this strange conjecture.

† See *Klein's Hist. Arium.* and *Kahri's Voyage.*

Linnæus asserts, that chimney swallows and martins immerse themselves in the water in winter; but supposes that swifts lay concealed in holes in church towers, and other secure places*.

Pontoppidan gives it as his belief, that swallows spent the winter in the water; and asserts, that they are frequently taken out of that element in large masses, by fishermen, in Norway and other northern countries†.

Daines Barrington supposed that the chimney swallow remained during winter immersed in water; but that the martin lay hid in cavities of rocks, old towers, and other secluded retreats: in support of which opinion he adduces a great number of facts‡.

Bewick expresses himself decidedly in favour of migration. After having made a few remarks on the occasional torpidity of these birds, he adds: “On the other hand, that actual migrations of the swallow tribe do take place, has been fully proved

* *Hybernat in templorum foraminibus.*

† *Pontop. Hist. Norway.*

‡ *Barrington's Miscell.* p. 255, and sequel.

by a variety of well attested facts, most of which have been taken from the observations of navigators, who were eye witnesses of their flights, and whose ships have sometimes afforded resting places to the weary travellers. To the many on record we shall add the following, which we received from a very sensible master of a vessel, who, whilst he was sailing, early in the spring, between the islands of Minorca and Majorca, saw great numbers of swallows flying northward, many of which alighted on the rigging of his ship in the evening, but disappeared before morning*."

Pennant believed that the bulk of each species migrated; but admits that some individual birds may have occasionally been found torpid in winter: in which opinion, Latham and White, and, in short, most modern naturalists, appear to have concurred.

In fine, the result of my researches on this subject has convinced me, that the swallow is a migratory bird, annually revisiting the same countries, in common with other birds of passage.

* *Bewick's British Birds*, vol. i. Introduction.

and that the bulk of each species betake themselves to some warmer climate when they disappear in autumn. There is sufficient evidence on record to establish the migration of birds of this genus; at the same time that, from the inaccurate observation of the witnesses, it is difficult, in most cases, to determine exactly the species alluded to. But while it is pretty certain that the greatest number of swallows migrate, it is not impossible that many individuals of each of the species may be concealed during winter near their summer haunts. Nature may have provided the swallow with this power of accommodating itself to accidental circumstances; and have enabled it, when hatched late, or otherwise prevented from joining the annual emigration, to sleep in security through the season when it could not obtain its proper food abroad; and to be revived again on the return of warm weather and of food.

On the other hand, as there exists no proof of the vernal reanimation of torpid swallows, it is possible that their torpidity, perhaps induced merely by cold and hunger, may, unless they be roused by accident before it has gone on too long,

be a fatal period to their existence. The cases of the discovery and revival of such torpid swallows are surely interesting; and future investigations may, perhaps, throw some light on the destiny of those left undisturbed.

It is to be hoped, that the increasing knowledge of the Linnaean classification will produce, in future, a more explicit description of the particular species, when any cases of the kind are published, and that persons who may meet with them will communicate them through the medium of the Philosophical Magazine, or some other of the public prints. The subject certainly deserves the accurate attention of the students of natural history.

It may be said, that some of the passages cited in this work may relate to species of the swallow which are not found in Great Britain. That this is seldom, if ever, the case, I am persuaded; not only because our four species also inhabit Italy and Greece, but because few of the other species of this genus are found in those countries in which the authors lived whose works have been cited.

That the reader who wishes to pursue this subject further may have an opportunity to consult the various writings of the ancients, and of natural historians in general on this subject, I have subjoined the following Table of Reference to their Works.

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APPENDIX.

*Extract from a Journal of Natural History,
showing the First and Latest Appearance of
Swallows, compared with other Phaenomena,
during several Years, at Clapton, near London.*

FIRST APPEARANCE OF THE SWALLOW IN 1805.

Hirundo rustica first appeared April 5, but not numerous till the end of the month.

FIRST APPEARANCE OF MIGRATORY BIRDS IN 1806.

Hirundo rustica first appeared at Woodford, in Essex, April 2, and became common towards the latter end of the month.

Hirundo vrbica, first seen April 26; long before it became common.

Iynx torquilla, first heard and seen May 1.

Cuculus canorus, the cuckoo, first heard May 3,

Motacilla atricapilla, seen May 8.

Motacilla luscinia, the nightingale, heard May 18. Swallows of both kinds became numerous.

*Motacilla rubetra**, the whinchat, observed May 20. Through this evening, an unusually great number of flies, flying in a vortex, were observed in the garden till late in the evening. The *iris lurida* in flower. The *irides versicolor* and *pseudacorus* came into flower this spring in the beginning of June.

The last appearance of migratory birds this year was not noticed.

1807.

Cuculus canorus, heard first April 23.

Lynx torquilla, April 30.

Hirundo rustica, first seen May 1.

Hirundo vrbica, the same day.

Hirundo apus, first seen, and numerous, May 16.

Flowers in bloom. *Iris pseudacorus*, June 14. *Papaver somniferum*, the large white variety, July 2.

1808.

Hirundo rustica, first seen April 18. From the 24th to the 29th of the same month, no swallows were to be

* Probably appeared much sooner, though not observed: its migration in England, is only from northward to southward; like the stonechat *motacilla rubecola*, it remains all the year in the more southern parts of England.

seen; the weather being cold, with north wind, they afterwards became numerous.

Hirundo vrbica, seen first May 1.

Lynx torquilla, the same day first heard.

Hirundo apus. This species first appeared, and was abundant, May 14. It was on the 21st of this month I saw the lambent electric light about the leaves of plants at eventide, described in my "Researches about Atmospheric Phaenomena," note to chap. iii. § 3. The following was the order in which plants flowered this spring and summer. *Iris Germanica*, June 3. *Papaver orientale*, the monkshood poppy, 7th. *Scilla peruviana*, and *Iris lurida*, 10th. *Iris pseudacorus*, 14th. *Papaver dubium*, *Rhoeas*, *hybridum* et *Argemone*, 25th. *Helianthus annuus*, July 28.

LATEST APPEARANCE OF MIGRATORY BIRDS IN 1808.

Hirundo apus, August 14. Sparrows, *fringillae domesticae*, have begun to congregate some time past, and to fly about in flocks. Martins begin to congregate.

Hirundo rustica, seen till middle of October.

Hirundo vrbica disappeared shortly after.

FIRST APPEARANCE IN 1809.

Hirundo rustica. On the 29th of January, during the

great floods in the marshes, by which even the bridge at Hackney brook was inundated, a single swallow appeared. The bird did not appear again till April 24.

Hirundo vrbica seen by me May 9. I believe, by other people, a few days sooner. Both species became numerous on the 13th. Early in May, I saw numbers of torpid bats in Wokie Hole, near Wells. The *papauer orientale* flowered this spring, May 17, and *scilla Peruviana*, and *tragopogon porrifolium*, June 11. *Papauer somniferum*, many coloured varieties, June 22.

On the 4th July I saw the swift, *hirundo apus*, flying aloft during a hard thunderstorm. Last appearance, unnoticed.

LATEST APPEARANCE IN 1809.

Hirundo rustica, October 3; a straggler on the 11th.

Hirundo vrbica, October 16. Flocks of wild ducks flying over the marshes on the 20th.

EARLIEST APPEARANCE IN 1810.

This was a mild spring; frogs were abundant, and the snowdrop, *garanthus nivalis*, was in flower Feb. 4.

Hirundo rustica. A straggling swallow, said to have been seen in the middle of March. I saw this bird on the 20th April.

Hirundo urbica, seen the same day, April 20. This was at Plaistow, near Westham. On the 21st the swallows appeared at Hackney. This became frequent toward May. They are said to appear earlier over marshes and near rivers, than more inland. Martins were numerous long before they were seen about their nests.

Lynx torquilla, the wryneck, April 21.

Hirundo apus first appeared May 19. These birds were not frequent about their old haunts in Hackney Old Church tower till May 25. On the 30th, *papaver Cambricum* was in flower. The *hirundo riparia* is said to have been seen this summer about the eagle pond, Wanstead. I have never myself seen this bird there. It is frequent in Surrey about the sandbanks, and also on the banks of the Thames.

LAST APPEARANCE IN 1810.

Hirundo apus. This bird, though gone from Hackney sooner, was seen by me at Ely Cathedral on the 10th August.

Hirundo rustica, October 10.

Hirundo urbica, October 10; by some people, later.

FIRST APPEARANCE IN 1811.

Motacilla atricapilla, April 5.

Lynx torquilla, April 8.

Hirundo rustica, April 18.

Motacilla phoenicurus, April 21.

Cuculus canorus, April 23.

Hirundo vrbica, second week in May. Owls hoot much.

LATEST APPEARANCE IN 1811.

Hirundo rustica. I last saw this species on the 8th of October: they appeared however, I believe, a little afterwards, though only here and there a straggler.

Hirundo vrbica, congregating and abundant on the 8th of October; soon afterwards disappeared.

FIRST APPEARANCE IN 1812.

Hirundo rustica. Edward Forster, jun. to whom I am indebted for much ornithological information, observed this species on April the 15th. They shortly afterwards became common.

Cuculus canorus, first heard April 23.

Hirundo vrbica, end of April.

Hirundo apus, the first week in May; not frequent for many days afterwards.

Caprimulgus Europaeus, seen in Epping Forest second week in June; probably arrived a month before.

This spring, the *Scylla Peruiana* flowered June 8.

Papaver orientale, June 12.

LATEST APPEARANCE IN 1812.

Hirundo apus. This species was seen at Penshurst so late as September 20.

Hirundo vrbica, seen late in October.

FIRST APPEARANCE IN 1813.

Hirundo rustica, beginning of April.

Hirundo vrbica, middle of April.

Hirundo apus, early in May.

LATEST APPEARANCE IN 1813.

Hirundo apus. This species was missed, as usual, in the middle of August. *Hirundo vrbica.* Stragglers seen as late as October 20. *Hirundo vrbica*, 21st October.

I did not, in 1814, notice the first appearance, but the birds were late. The *Hirundo rustica* about April 18. In the autumn, while I was travelling in North Wales, I forgot to notice them. In 1815, omitted I again to notice them, till I saw them in France towards Midsummer. In spring, 1816, saw I the swallow at Linlithgow, April 26, and the martin at Dunkeld, April 30; and I noticed them about the English lakes, and all the way through Wales, by a circuitous route, from the Highlands of Scotland.

Having given the above sketch of the earliest and latest appearances of the swallows during a few years, I shall conclude by advising a mode of furthering

the inquiry into the winter retreat of swallows in particular, as well as of birds in general. A regular table should be made out annually, from accurate observation, and it should consist of seven or eight columns, as follows: thus,

TABLE I.

1	2	3	4	5	6	7	8
Species of bird.							
Day of appearance.							
Direction and force of wind at the time.							
Previous and supervening currents.							
The state of thermometer.							
The state of barometer.							
Weather and clouds.							
Place of observation.							

TABLE II.

1	2	3	4	5	6	7
Species of bird.						
When became common.						
Pervailing wind.						
General state of weather and clouds.						
Barometer.						
Thermometer.						
Place of observation.						

The direction of the wind should always be particularly noticed at the time of the swallow's arrival. The wind is often wrongly registered in journals of the weather, owing to the indicatorial letter under the weathercocks being put up according to the compass instead of the sun. I had some difficulty in getting the meridian for fixing the letter of a large windvane I put up at Walthamstow last spring, and was hence induced

to inquire into the mode of fixing them in general, which led to the knowledge of the above fact. If the weather-cock be put according to the compass, then will the northern letter be above 20 degrees to the west of the true north*.

Similar tables of the autumnal diminution of their numbers and latest appearances might be made out. By a comparison of many such tables as these, made from observations in different places, may we possibly trace the swallow, in some degree, through its passage, by noticing its successive appearance in places more and more northward from the aequatorial to the polar regions in spring, and backward again in autumn. Such tables, made out in different places, may be communicated to the public in the Philosophical Magazine and other periodical journals.

* The compassnorth is constantly varying. See the excellent tables of the variation of the magnetic needle, by Colonel Beaufoy, in Thomson's "Annals of Philosophy."

ADDENDUM.

ON THE VARIETIES OF THE SWALLOW.

[Omitted in its proper place in the Text.]

IT is well known that birds, like other animals, are subject to variations in colour. Sparrows have been found quite white, bulfinches black, &c.: the most common variety of all, however, is white. Many birds regularly change their plumage in winter, and some are more subject to occasional varieties than others.

The swallow tribes more rarely vary than perhaps many other kinds of birds: however, swallows have been found white, and otherwise altered in their plumage. Brisson mentions a white variety of the *hirundo rustica**: and Lathan mentions having seen one white, with a reddish chin. The same author notices white swallows in many Chinese drawings.

A variety of the *hirundo rustica* was brought from North America to Sir Joseph Banks, which differed from the common martin, in having the upper parts dusky instead of black. Of the *hirundines ambrosiaca*, *borbonica fonericana pelasgica*, some varieties are mentioned†.

* Bris. Ornithol. ii. 489.

† Latt. Ornithol. Index 579, 581, &c.

CATALOGVS AVIVM

IN

INSVLIS BRITANNICIS HABITANTIVM.

CVRA ET STVDIO

EDVARDI FORSTERI, IVNIORIS.

N. B. Those marked with an asterisk [*], are in the Collection of
E. FORSTER, Jun. of Clapton.

ORDO I. ACCIPITRES.

GENVS I.

FALCO CHRYSÆTOS.

The Goldeneagle.

*FALCO OSSIFRAGVS.

The Seaeagle, or Breakbone.

FALCO FVLVVS.

Ringtailedeagle, or Commoneagle.

FALCO ALBICILLA.

Whitetailedeagle, Great Erne, or Cinereous-eagle.

FALCO HALIAETVS.

Osprey, Baldbuzzard, Seaeagle, Fishinghawk, Leadeneagle, or Fishingeagle.

FALCO BVTEO.

Commonbuzzard, or Puttuck.

***FALCO AERVGINOSVS.**

Moorbuzzard, Duckhawk, Dunpickle, or White headedharpy.

FALCO APIVORVS.

Honeybuzzard, Beebuzzard, or Cappedbuzzard.

FALCO PALVMBARIVS.

Goshawk.

***FALCO MILVVS.**

Kite, Kyte, Forkedtailedkyte, or Glead.

FALCO GENTILIS.

Falcongentil, Gentilfalcon, Haggard, or Blue-backedhawk.

FALCO PEREGRINV.

Peregrinfalcon.

FALCO VERSICOLOR.

Spottedfalcon.

FALCO LAGOPVS.

Roughleggedfalcon, or Greenlandfalcon.

FALCO GRISEVS.

Greyfalcon.

FALCO ISLANDICVS.

Gerfalcon, Icelandfalcon, or Whitegerfalcon.

FALCO LANARIVS.

Lanner, Butcherfalcon, or Pigeonfalcon.

FALCO CYANEVS.

Henharrier, Dovecolouredfalcon, Bluehatck, or Hendriver, Ringtail, or Whiterumped, or Bayfalcon.

FALCO TINNVNCVLVS.

Kastril, Kestrel, Stonegall, Stannelhawk, Windhover, Steingall.

***FALCO NISVS.**

Sparrowhawk, or Pigeonhawk.

FALCO SVBBVTEO.

Hobby, or Hobbiehawk.

***FALCO AESALON.**

Merlin.

FALCO CINERACEVS.

Ashcoloredfalcon, Northernfalcon, Winterfalcon.

GENVS II.

STRIX BVBO.

Greatearedowl, Eagleowl, or Greathornowl.

***STRIX OTVS.**

Longearedowl, or Lesserhornowl.

***STRIX BRACHYOTVS.**

Shortearedowl, Mousehawk, Woodcockowl, or Hawkowl.

STRIX FLAMMEA.

Whiteowl, Barnowl, Churchowl, Gillihowlet, Schreechowl, Madgehowlet, or Hissinghowlet.

***STRIX STRIDVLA.**

Tawneyowl, Howlett, Ivyowl, Commonowl, Alucoowl, Woodowl, Ulula, or Brownhowlet.

STRIX PASSERINA.

Littleowl, or Sparrowowl.

STRIX NYCTEA.

Snowyowl, or Snowowl.

STRIX SCOPS.

Littlehornowl, or Scopsowl.

GENVS III.

*LANIVS EXCVBITOR.

*Greatcinereousshrike, Massages, Wierangle,
Murderingbird, Murderingpie, Skreek, Skrike,
Nightjar, Mountainmagpie, Frenchpie, or Mu-
derbird.*

LANIVS COLLVRO.

Redbackedshrike, Lesserbutcherbird, or Fluscher.

LANIVS RVTILVS.

Woodchat, Woodshrike.

ORDO II. PICAE.

GENVS IV.

CORVVS CORAX.

*The Raven, Greatcorbiecrow, or Ravencrow.
κοράνη.*

CORVVS CORONE.

*Commoncrow, Gorcrow, Cowcrow, or Carrion-
crow. κοράξ.*

CORVVS FRVGILEGVS.

Rook, Grainerow, Flockcrow, or Rookcrow.

CORVVS CORNIX

Hoodedcrow, Duncrow, Scarecrow, Bunting-crow, Greycrow, or Roystoncrow.

CORVVS GRACVLVS.

Redleggedcrow, Cornishdaw, Cornishchough, Cornwallkae, or Killigrew.

CORVVS MONEDVLA.

Jackdaw, Chough, Daw, or Jackdawcrow.

CORVVS GLANDARIVS.

Jay.

CORVVS PICA.

Magpie, Planet, Piedcrow, or Longtailedmag, Pianet.

CORVVS CARYOCATACTES.

Nutcracker, Spottedcrow.

GENVS V.

AMPELIS GARRVLVS.

Chatterer, Silktail, Waxenchatterer, or Bohemianwaxwing.

GENVS VI.

CORACIAS GARRVLA.

The Roller, Germanparrot.

GENVS VII.

CORIOLVS GALBVLA.

Goldenoriole.

GENVS VIII.

CVCVLVS CANORVS.

Cuckow, Cuccoo, or Gowk. The *νονυμός* of the Greeks.

GENVS IX.

*IYNX TORQVILLA.

Wryneck, Emmethunter.

GENVS X.

PICVS MARTIVS.

Great Blackwoodpecker.

*PICVS MAIOR.

Greater Spottedwoodpecker, Witwall.*

PICVS MINOR.

Lesser Spottedwoodpecker, Witwall.

PICVS VILLOSVS.

Hairywoodpecker.

*PICVS VIRIDIS.

Greenwoodpecker, Woodspite, Rainbird, Rainfowl, Highhoe, Hewhoe, Awlbird, Yappingale, Yaffle or Yaffn, Woodwall, Poppinjay, Hewhole, Pickatree, or Woodfowl.

* The young is called *middle spottedwoodpecker*.

GENVS XI.

SITTA EVROPAEA.

*Nuthach, Nutjobber, Woodcracker, Nutcracker,
Treeclimber, or Woodpecker.*

GENVS XII.

MEROPS APIASTER.

Common Bee-eater.

GENVS XIII.

VPVPA EPOPS.

Hoopoe.

GENVS XIV.

ALCEDO ISPIDA.

**Kingfisher, or Halcyon.*

GENVS XV.

CERTHIA FAMILIARIS.

Creeper, Treecreeper, Insecthunter, Timber-climber, or Treeclimber.

ORDO III. PASSERES.

GENVS XVI.

STVRNVS VVLGARIS.

*Starling, or Stare**.

GENVS XVII.

TVRDVS VISCIORVS.

Misslethrush, Cockthrostle, Screechthrush, Holm-thrush, Stormcock, Stormbird, Misseltoethrush, Rainfowl, Stormfowl, or Greatthrush.

TVRDVS MVSICVS.

Throstle, Songthrush, Greybird, or Mavis.

TVRDVS PILARIS.

** Fieldfare, Pigeonfelt, Feltefare, or Fellfare.*

TVRDVS ILIACVS.

Redwing, Swinepipe, Windthrush.

TVRDVS MERVLA.

Blackouzel, Blackbird, or Amsel.

TVRDVS TORQVATVS.

** Ringouzel, Ringblackbird, or Ringthrush.*

* The young birds of this species are called *solitary starlings*.

TVRDVS ROSEVS.

Rosecoloredouzel, or Rosecoloredthrush.

TVRDVS CINCLVS.

Waterouzel, Watercrow, Waterpoit, or Dipper.

GENVS XVIII.

LOXIA CVRVIROSTRA.

Crossbill, or Shellapple.

LOXIA COCCOTHRAVSTES.

Grosbeak, Hawfinch, Cherryfinch, or Thickbill.

LOXIA ENVCLEATOR.

Pinegrosbeak, Greatestbulfinch.

LOXIA CHLORIS.

Greengosbeak, Greenbird, Greenfinch, or Green-linet.

LOXIA PYRRHVLA.

Bullfinch, Alp, Nope, Redhoop, or Tonyhoop.

GENVS XIX.

EMBERIZA MILIARIA.

**Commonbunting, Buntinglark, or Ebb.*

EMBERIZA CITRINELLA.

Yellowbunting, Yellowhammer, or Yellow-yowley.

EMBERIZA SCHAENICLVS.

*Reedbunting, Reedsparrow, Watersparrow, or
Blackheadedbunting.*

EMBERIZA NIVALIS.

Snowbunting, Snowflake, or Snowbird.

EMBERIZA GLACIALIS.

Tawnybunting, Snowflake, or Snowlark.

EMBERIZA MONTANA.

Mountainbunting.

EMBERIZA TVNSTALLI.

Greenheadedbunting.

EMBERIZA CIRLVS.

Cirlbunting.

GENVS XX.

*FRINGILLA DOMESTICA.

Sparrow, Domesticsparrow, or Housesparrow.

FRINGILLA MONTANA.

Mountainsparrow, Treesparrow.

*FRINGILLA COELEBS.

*Chaffinch, Shelfa, Scobby, Shelly, Shellapple,
Whitelinnet, Pinkbeechfinch, Horsefinch, Twink,
or Pyefinch.*

FRINGILLA MONTIFRINGILLA.

Mountainfinch, Brambling, Bramble, or Kate.

*FRINGILLA CARDVELIS.

Goldfinch, Goldspink, Thistlefinch.

*FRINGILLA SPINVS.

Siskin, Aberdivine.

*FRINGILLA LINOTA.

Linnet, Greylinnet, Brownlinnet.

FRINGILLA LINARIA.

Lesserredpole.

FRINGILLA MONTIVM.

Twite, or Redrumpedlinnet.

GENVS XXI.

MVSCICAPA GRISOLA.

Spottedflycatcher, Beambird, Rafterbird, Beebird, Cherrysucker, or Chanchider.*

MVSCICAPA ATRICAPILLA.

Piedflycatcher, or Coldfinch.

GENVS XXII.

ALAVDA ARVENSIS.

Skylark, Lavrock, or Commonfieldlark.

ALAVDA ARBOREA.

Woodlark.

ALAVDA RVBRA.

Redlark.

ALAVDA CRISTATELLA.

Lessercrestedlark.

ALAVDA MINOR.

Fieldlark, or Meadowlark.

ALAVDA PRATENSIS.

**Titlark, or Pipetlark.*

ALAVDA PETROSVS.

Rocklark, Duskylark, or Sealark.

GENVS XXIII.

MOTACILLA ALBA.

*Whitewagtail, Black and Whitewagtail,
Waterwagtail, Dishwasher, Washerwoman,
or Collaredwagtail.*

MOTACILLA FLAVA.

**Yellowwagtail, Springwagtail, or Summer-
wagtail.*

MOTACILLA BOARVLA.

Greywagtail, or Winterwagtail.

GENVS XXIV.

SYLVIA LVSCINIA.

Nightingale, or Nachtigall.

SYLVIA HORTENSIS.

**Greaterpettychaps.*

SYLVIA HIPPOLAIS.

Lesserpettychaps, or Chifchaffchipatorfauvette.

SYLVIA CINEREA.

Whitethroat, Haybird, Haychat, or Haytit.

SYLVIA SYLVIELLA.

**Lesserwhitethroat.*

SYLVIA MODVLARIS.

*Hedgewarbler, Hedgesparrow, Winterfauvette,
Dunnock, or Titling.*

SYLVIA DARTFORDIENSIS.

Dartfordwarbler.

SYLVIA SALICARIA.

**Reedwarbler, Reedfauvette, Sedgewarbler,
Sedgewren, Lesserreedsparrow, or Sedge-
bird.*

SYLVIA RVBECVLA.

Redbreast, Robin, Robinredbreast, or Ruddock.

SYLVIA OENANTHE.

*Whiterump, Wheatear, Clodhopper, Shepherd's-
bird, Fallowfinch, Fallowsmish, Chicel, or
Snorter.*

SYLVIA RVBICOLA.

*Stonechat, Stonesmish, Moortitling, Furzechat,
or Heathchat.*

SYLVIA RVBETRA.

Whinchat, Furzechat.

SYLVIA TROGLODYTES.

Commonwren, Skitty or Kittywren.

SYLVIA REGVLVS.

**Goldencrestedwren, Goldenheadedwren, or Marygoldfinch.*

SYLVIA TROCHILVS.

**Yellowwren, Smallyellowbird, Scotchwren, Groundwren, or Groundhuckmauc.*

SYLVIA SYLVICOLA.

**Woodwren, Bankwren, Larger not Crestedwren, or Yellowwillowwren.*

SYLVIA ARVNDINACEA.

Reedwren, or Reedfauvette.

SYLVIA PHOENICVRUS.

Redstart, Redtail, or Shaketail.

SYLVIA ATRICAPILLA.

**Blackcap, Haychat, Nettlecreeper, or Nettlemonger.*

SYLVIA LOCVSTELLA.

Grasshopperwarbler, or Grasshopperlark.

GENVS XXV.

PARVS MAIOR.

**Greattitmouse, Greatblackheadedtomtit, Blackcapedtomtit, Oxeye, or Jobent.*

PARVS CAERVLEVS.

**Bluetitmouse, Tomtit, Bluecap, Nun, or Hickmoll.*

PARVS PALVSTRIS.

**Marshtitmouse, or Littleblackheadedtomtit.*

PARVS ATER.

**Coletitmouse, Colemouse, or least Black-headedtomtit.*

PARVS CAVDATVS.

*Longtailedtitmouse, Huckmuc, Bottletom,
Longtailedmag, Longtailedcapon, Longtailpie,
Bottletit, Bumbarrel, Mumruffin, Conbottle,
or Barreldowntomtit.*

PARVS BIARMICVS.

Beardedtitmouse, or Leastbutcherbird.

PARVS CRISTATVS.

Cresteditmouse.

GENVS XXVI.

HIRVNDO RVSTICA.

**Chimneyswallow, Houseswallow, or Fork-tailedswallow.*

HIRVNDO RIPARIA.

Sandmartin, Sandswallow, Bankmartin, Shorebird, or Riverswallow.

HIRVNDO VRBICA.

Martin, Martlet, Martinet, Housemartin, Windowswallow, Whiterumpedswallow, or Fensterschwalbe.

HIRVNDO APVS.

Swift, Blackmartin, Blackswallow, Devilingscreamer, Screechowl, or Shriekowl.

HIRVNDO PRATINCOLA.

Austrianpratincole.

GENVS XXVII.

CAPRIMVLGVS EVROPAEVS.

*Nightjar, Goatsucker, Dorhawk, Fernowl,
Nighthawk, Churnowl, Goathawk, Wheelhawk,
Wheelbird, Wheolowl, Spinningbird, Goat-
milker, or Evejar.*

ORDO IV. PALVMBES.

GENVS XXVIII.

COLVMBA PALVMBVS.

**Ringdove, Ringpigeon, Quest, Cushat, or
Woodpigeon.*

COLVMBA OENAS.

*Rockdove, Wildpigeon, Stockdove, Stockpigeon,
or Rockier.*

COLVMBA TVRTVR.

Turtledove.

ORDO V. GALLINACII.

GENVS XXIX.

PHASIANVS COLCHICVS.

**Pheasant.*

GENVS XXX.

TETRAO VROGALLVS.

*Woodgrouse, Greatgrouse, Cock of the Wood,
Capercaile, or Capercaillie.*

TETRAO TETRIX.

*Blackgrouse, Blackgame, Blackcock, Heath-
fowl, or Heathpoult.*

TETRAO SCOTICVS.

Redgrouse, Redgame, Gorcock, or Moorcock.

TETRAO LAGOPVS.

Whitegrouse, Ptarmigan, or Whitegame.

GENVS XXXI.

PERDIX CINEREA.

**Partridge.*

PERDIX RVFA.

*Guernsey partridge, Redlegged partridge, or
French partridge.*

PERDIX COTVRNIX.

Quail, or Moorpot.

GENVS XXXII.

OTIS TARDA.

Great bustard.

OTIS TETRAX.

Littlebustard.

OTIS OEDICNEMVS.

**Thickneedbustard, Norfolkplover, Greatplover,
or Stonecurlew.*

ORDO VI. GRALLAE.

GENVS XXXIII.

PLATALEA LEVCORODIA.

Spoonbill, or Whitespoonbill.

GENVS XXXIV.

ARDEA GRVS.

Crane. Γέραvος.

ARDEA CICONIA.

Stork. πυγαρύoς.

ARDEA CINEREA.

**Heron, Heronsewagh, or Heronshaw, Skip-hedge, or Crane.*

ARDEA ALBA.

Greatwhiteheron.

ARDEA NYCTICORAX.

Nightheron, Nightraven, or Lesserashcoloured-heron.

ARDEA AEQVINOCTIALIS.

Littlewhiteheron.

ARDEA GARDENI.

Gardenianheron.

ARDEA COMATA.

Sguaccoheron.

ARDEA LENTIGENOSA,

Freckledheron.

ARDEA CASPICA.

Africonheron.

ARDEA STELLARIS.

**Bittern, Bogbumper, Bitter or Butterbum,
Bittour, Miredrum, Bumpycoss, Marshboomer,
or Boomingbird.*

ARDEA MINVTA.

Littlebittern, Boonk, or Longneck.

ARDEA GARZETTA.

Egret, or Littleegret.

GENVS XXXV.

TANTALVS IGNEVS.

Glossyibis, Green or Bayibi.

GENVS XXXVI.

NVMENIVS ARQVATA.

**Curlew, or Greatcurlew.*

NVMENIVS PHAEOPVS.

**Whimbrel, Halfcurlew, or Jackcurlew.*

GENVS XXXVII.

SCOLOPAX RVSTICOLA.

Woodcock, Moonbird.

SCOLOPAX MAIOR.

Greatsnipe.

SCOLOPAX GRISEA.

Brownsnipe.

SCOLOPAX GALLINAGO.

**Commonsnipe, Snite, or Heathbleater.*

SCOLOPAX GALLINVLA.

**Judcock, Jacksnipe, Ged or Jetcock.*

SCOLOPAX CALIDRIS.

**Redshank, Redleggedhorsemen, Poolsnipe, or Sandcock.*

SCOLOPAX TOTANVS.

Spottedredshank, Spottedsnipe, Redleggedgodwit, Barker, or Stoneplover.

SCOLOPAX GLOTTIS.

**Greenshank, Greenshankedgodwit, Greenleggedhorseman, or Cambridgegodwit.*

SCOLOPAX OEGOCEPHALA.

**Commongodwit, Goodwit, Godwin, Yarwelp, or Yarwip.*

SCOLOPAX LAPPONICA.

Redgodwit, or Redbreastedgodwit.

SCOLOPAX CANESCENS.

Cinereousgodwit, Lessergodwit, second sort of Godwit, or Gadrekañsnipe.

GENVS XXXVIII.

TRINGA PVGNAX.

**Ruff, Fightingsandpiper, Greenwichsandpiper,
Yellowleggedsandpiper, Equestriansandpiper, or
Gambet.*

TRINGA VANELLVS.

*Lapwing, Peewit, Tewit, Bastardplover, or
Greenplover.*

TRINGA SQVATAROLA.

*Greysandpiper, Greyplover, Swissandpiper, or
Switzerlandischsandpiper.*

TRINGA LINCOLNIENSIS.

Blacksandpiper.

TRINGA FVSCA.

Brownsandpiper.

TRINGA HYPOLEV COS.

Commonsandpiper.

TRINGA OCROPVS.

Greensandpiper, or Shoresandpiper.

TRINGA NIGRICANS.

Purplesandpiper, Seasandpiper.

TRINGA MACVLARIA.

Spottedsandpiper, or Spottedtringa.

TRINGA GLAREOLA.

Woodsandpiper, or Longleggedsandpiper.

TRINGA ISLANDICA.

**Redsandpiper, Dusky sandpiper, Ashcoloured-sandpiper, Knot, Knute, Knout, or Aberdeen-sandpiper.*

TRINGA PYGMIA.

Pygmy sandpiper.

TRINGA CINCLVS.

**Purre, Dunlin, Stint, Leastsnipe, Oxbird, Oxeye, Bullseye, Sealark, or Wagtail.*

TRINGA PVSILLA.

Littlestint, or Littlesandpiper, Leastsnipe.

TRINGA INTERPRES.

Turnstone, Seadotterel, or Hebridalsandpiper.

TRINGA MORINELLA.

**Turnstone.*



GENVS XXXIX.

CHARADRIVS PLVIALIS.

Goldenplover, Yellowplover, or Rainplover.

CHARACRIVS HIMANTOPVS.

Longleggedplover, Longshanks, or Longlegs.

CHARADRIVS CVRSOR.

Creamcolouredplover.

CHARADRIVS MORINELLVS.

Dotterel.

CHARADRIVS HIATICVLA.

Ringdotterel, Ringplover, or Sealark.

CHARADRIVS CALIDRIS.

Sanderling, Towille, or Curwellet.

GENVS XL.

HAEMATOPVS OSTRALEGVS.

**Oystercatcher, Pied oystercatcher, Seapie, or Olive.*

GENVS XLI.

RALLVS AQVATICVS.

**Waterrail, Billcock, Velvetrunner, or Brookouzel.*

GENVS XLII.

GALLINVLA CREX.

Corncrake, Landrail, Crakegallinule, or Dakerhen.

GALLINVLA CHLOROPVS.

**Waterhen, Common gallinule, or Moorhen.*

GALLINVLA PORZANA.

**Watercrake, Spotted rail, Lesserspotted water-rail, or Spotted gallinule.*

ORDO VII. PINNATIPEDES.

GENVS XLIII.

PHALAROPVS HYPERBOREVS.

Redphalarope, Cootfootedtringa, Redcoot-footedtringa, Redneckedphalarope, or Plain-phalarope.

PHALAROPVS LOBATVS.

Greyphalarope, Greatcootfootedtringa, Scallop-toedsandpiper, Greycootfootedstint, Brown-phalarope.

GENVS XLIV.

FVLICA ATRA.

**Coot, Baldcoot, Greatestmoorhen, or Great-coot.*

GENVS XLV.

PODICEPS CRISTATVS.

**Greatcrestedgrebe, Greatercrested or Horned-ducker, Grey or Ashcolouredloon, Greaterloon, Arsefoot, Tippedgrebe, Cargoose, Gaunt, or Naffe.*

PODICEPS OBSCVRVS.

Duskeygrebe, Black and Whitedobchick, or Dabchick.

PODICEPS AVRITVS.

Earedgrebe, Eareddobchick, Smallhorned-didapper, Fireeye.

PODICEPS RVBRICOLIS.

Redneckedgrebe, Redneckeddobchick.

PODICEPS MINOR.

**Littlegrebe, Dipper, Dobchick, Dabchick, Didapper, Smalldouker, Loon, or Arsefoot.*

PODICEPS HEBRIDICVS.

Blackchingrebe.

PODICEPS CORNVTVS.

Scalvoniangrebe.

ORDO VIII. PALMIPEDES.

GENVS XLVI.

RECVRVIROSTRA AVOCETTA.

Avoset, Scooper, Crookedbill, Yelper, Butterflip, Picarini, Cobler'sawl.

GENVS XLVII.

ALCA IMPENNIS.

Greatauk, Northernpenguin, or Gairfowl.

ALCA TORDA.*Razorbilledauk.***ALCA PICA.****Blackbilledauk, Whitethroatedrazorbill.***ALCA ARCTICA.***Puffin, Mullet, Coulterneb, Seaparrot, Pope,
or Willock.***ALCA ALLE.***Littleauk, Little Black and Whitediver, Green-
landdove, or Seaturtle.***GENVS XLVIII.****VRIA TROILE.***Foolishguillemot, Seahen, Scout, Kiddaw,
Murre, Lavy, Willock, Tinkirshire, or Stromy.***VRIA MINOR.****Lesserwillemot, Winterguillemot, or Morrot.***VRIA GRYLLE.***Blackguillemot, Littleguillemot, Greenland-
dove, Seaturtle, Scraber, or Tyste.***GENVS XLIX.****COLYMBVS GLACIALIS.****Greatnortherndiver, Greatestspeckleddiver, or
Loon.*

COLYMBVS IMMER.

Imberdiver, Embergoose, Immer, Greater-doucker, or Cobble.

COLYMBVS STELLATVS.

Speckleddiver, Spratloon, Cobble, Firstspeckled-diver, Secondspeckleddiver.

COLYMBVS ARCTICVS.

Blackthroateddiver, Northerndoucker, or Speckledloon.

COLYMBVS SEPTENTRIONALIS.

Redthroateddiver, or Loon.

GENVS L.

STERNA BOYSII.

Sandwichtern, Clovenfootedgull.

STERNA HIRVNDO.

Commontern, Seawallow, Greatertern, Gull-teazer, Carswallow, Tarney, Tarract, Tarret, or Terrick, Kamtschatkantern.

STERNA MINVTA.

Lessertern, Lesserseawallow, Richelbird, Little-carswallow.

STERNA FISSIPES.

**Blacktern, Clovenfootedgull, Scarecrow, Carswallow, or Stern.*

STERNA OBSCVRA.

Browntern.

STERNA ANGLICA.

Gullbilledtern.

STERNA DOVGALLII.

Roseatetern.

GENVS LI.

LARVS PARASITICVS.

*Arcticgull, Feaser, Dunghunter, Scull, Badock,
Fesceddar, Scoutinallan, Dertenallan, Allan,
Longtailedlabbe.*

LARVS RIDIBVNDVS.

**Blackheadedgull, Puit or Peewitgull, Blackcap,
Seacrow, Mirecrow, Crocker, Pickmire,
Hoodedcrow, Redleggedgull, Brownheadedgull,
or Browngull.*

LARVS CREPIDATVS.

*Blackheadedgull, Dungbird, Boatswain, or
Labbe.*

LARVS CANVS.

*Commongull, Commonseamal, Seamew, Winter-
gull, or Whitewebfootedgull.*

LARVS MARINVS.

*Greatblackbackedgull, Great Black and White-
gull, or Cobb.*

LARVS ARGENTATVS.

Lessblackbackedgull, or Silverygull.

LARVS FVSCVS.

Herringgull, or Wagel.

LARVS ATRICILLA.

Laughinggull.

LARVS CATARRACTES.

Squagull, Browngull.

LARVS RISSA.

**Kitiwake, Tarrock, Annett.*

GENVS LII.

PROCELLARIA GLACIALIS.

*Fulmarpetrel, Fulmer, Mallemokepuffin, m
Mankspuffin.*

PROCELLARIA PELAGICA.

*Stormypetrel, Littlepetrel, Which, Mother-
cary'schicken, Mitty, Speney, Seawallow,
Allamotti, or Stormfinch.*

PROCELLARIA PVFFINVS.

Shearwaterpetrel.

GENVS LIII.

MERGVS MERGANSER.

Goosander.

MERGVS SERRATOR.

**Redbreastedmerganser, Redbreastedgoosander,
Lessertootheddiver, Serula, Lessdundiver, or
Harle.*

MERGV^S CASTOR.

*Dundiver, Sparling, Sparklingfowl, Jacksaw,
or Harleduck.

MERGV^S ALBELLVS.

Smew, Redheadedsmew, Minutemerganser
Whitenun, Loughdiver, Weeselcoot, White-
wigeon, Varewigeon.

GENVS LIV.

ANAS CYGNVS (FERVS.)

Wildswan, Elk, Hooper, Whistlingswan.

ANAS ANSER.

Greylaggoose, Greyleggoose, Fengoose, Com-
monwildgoose.

ANAS RVFICOLLIS.

Redbreastedgoose.

ANAS ALBIFRONS.

Whitefrontedgoose, Whitefrontedwildgoose,
Laughinggoose.

ANAS SEGETVM.

Beangoose, Smallgreygoose.

ANAS ERYTHROPVS.

Bernaclegoose, Barnaclecanadagoose, or Tree-
goose.

ANAS BERNICLA.

Brentgoose, Smallerbernaclegoose, Rat or
Roadgoose, Clattergoose, Brandgoose, Rood-
goose, Blackgoose, Ringneckgoose, Horiagoose,
or Quintgoose.

ANAS MOLLISSIMA.

Eidergoose, Edderduck, Great Black and Whiteduck, Cuthbertduck, Colkwinterduck.

ANAS FVSCA.

**Velvetwork duck, Doublescoter, Greatblackduck, Blackdiver.*

ANAS NIGRA.

**Scoterduck, Blackduck, Blackdiver, White-throatedduck.*

ANAS BOSCAS.

**Commonwildduck, Mallard, or Stockduck.*

ANAS TADORNA.

**Shieldduck, Sheldrake, Shelduck, Burrow-duck, St. George'sduck, Skygoose, Skeelduck, Skeelinggoose.*

ANAS MARILA.

**Scaupduck, Whitefrontedduck, Whitefaced-duck, Spoonbilledduck, or Blackheadedwigeon.*

ANAS CLYPEATA.

**Shovelerduck, Bluewingeshoveler, Red-breastedshoveler.*

ANAS NYROCA.

**Castaneousduck, Ferruginousduck, Redduck, Redbreastedduck.*

ANAS GLOCITANS.

Bimaculatedduck.

ANAS STREPERA.

**Gadwallduck, Gray or Grey.*

ANAS PENELOPE.

*Wigeonduck, Wigeonpoker, Whewer, Whim,
Pandlewhew, Yellowpole.*

ANAS FERINA.

**Pochardduck, Redheadedwigeon, Duncur,
Redpoker, Redheadedpoker, Vareheadedwigeon,
Greatheadedwigeon, Blaepoker, Dunbird.*

ANAS ACVTA.

*Pintailedduck, Seapheasant, Winterduck,
Cracker.*

ANAS GLACIALIS.

Longtailedduck, Swallowtailedsheldrake, Sharp-tailedduck, Caloo, Calaw, or Coalandcandle-light.

ANAS CLANGVLA.

*Goldenedgeduck, Morilion, Brownheadedduck,
Greyheadedduck, or Black and Whitepoker.*

ANAS FVLIGVLA.

Tuftedduck, Blackpoker, Blackwigeon.

ANAS QVERQVEDVLA.

**Garganyduck, Summerteal, or Piedwigeon.*

ANAS CRECCA.

**Tealduck, or Summertcal.*

ANAS HISTRIONICA.

*Harlequinduck, Dusky and Spottedduck,
Littlebrown and Whiteduck.*

ANAS SPECTABILIS.

Kingduck.

GENVS LV.

PELECANVS CARBO.

Corvorant, Crestedcorvorant, or Cormorant.

PELECANVS GRACVLVS.

Shag, Crestedshag, or Greencormorant.

PELECANVS BASSANVS.

Gannet, Gan, Solandgoose or Soalandgoose.

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